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10/817,115	04/02/2004	Peter G. Webb	10040012-1	3835

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INTELLECTUAL PROPERTY ADMINISTRATION,LEGAL DEPT.

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EXAMINER

SIMS, JASON M

ART UNIT

PAPER NUMBER

1631

NOTIFICATION DATE

DELIVERY MODE

03/05/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

IPOPS.LEGAL@agilent.com

### Office Action Summary

**Application No.**

10/817,115

**Applicant(s)**

WEBB ET AL.

**Examiner**

JASON M. SIMS

**Art Unit**

1631

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 02 September 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 and 7-29 is/are pending in the application.
- 4a) Of the above claim(s) 11-25 and 28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-10, 26-27, and 29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/808)
- Paper No(s)/Mail Date 7/22/2008
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

Applicant's arguments, filed 9/2/2008, have been fully considered. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

Applicants have amended their claims, filed 9/2/2008, and therefore rejections newly made in the instant office action have been necessitated by amendment.

Applicant has newly added claim 29 in the response filed 9/2/2008, which has been acknowledged and entered.

Claims 11-25 and 28 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected inventive group, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 9/19/2006.

Claims 1-5, 7-10, 26-27, and 29 are the current claims hereby under examination.

### ***Claim Rejections - 35 USC § 112***

#### ***Response to Arguments***

Applicant's arguments, filed 9/2/2008, with respect to the rejections of claims under 35 USC 112 second paragraph have been fully considered and are persuasive. Therefore the rejections have been withdrawn.

***The following rejection has been modified, which was necessitated by amendment:***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1 and all claims dependent therefrom are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 1 (and all claims dependent therefrom comprise) the newly amended limitation wherein said instruction names an executable program for decoding array information, which has been deemed as new matter. Support for instructions naming an executable program for decoding array information were not found in the instant specification.

***Claim Rejections - 35 USC § 101-modified***

***Response to Arguments:***

Applicant's arguments with respect to claims 1-5, 7-10 and 26-27 have been considered but are moot in view of the new ground(s) of rejection.

***The following rejection has been modified, which was necessitated by amendment:***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-5, 7-10, 26-27, and 29 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

The claims are drawn to a computer program on computer readable media. A review of the specification does not show a definition of computer readable media such that excludes an embodiment that is information in a signal, which reads on a data storage means. As such an embodiment of the claims reads on non-statutory subject matter (see *In re Nuijten* 84 USPQ2d 1495 (2007)). The applicants may overcome the rejection by amendment of the claims to be limited to physical forms of computer readable media described in the specification, or if no description exists for physical computer readable media, by presenting a statement that the claims do not read on embodiments that are not physical computer readable media that are conventional in the art.

***Claim Rejections - 35 USC § 102 and 35 USC § 103***

***Response to Arguments:***

Applicant's arguments with respect to claims 1-2, 6 and 26-27 have been considered but are moot in view of the new ground(s) of rejection.

***The following rejections have been necessitated by amendment:***

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2 and 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morris et al (European Patent Application No. EP 0 799 897 A1, published 08 October 2007) in view of Brandon et al. (US A/N 2004/0143403).

The claims are drawn to a computer-readable medium comprising: information for decoding encoded array information obtained from an array comprising one or more array information features, wherein said computer readable medium is selected from the group consisting of a data storage means, a memory access means, hard disk drive, an integrated circuit, a floppy disk, magnetic tape, a ROM, a CD-ROM, a hard-drive ROM, a DVD, a magneto-optical disk, a computer readable card, and a RAM.

Regarding claims 1-2, Morris et al at Fig. 5, teach encoded information comprising one or more array information features present on said array; namely, the letters "DNA TAGS" are spelled out on the array using immobilized oligonucleotides bound to labeled control oligonucleotides to form the letters (page 5, lines 15-25). The additional spots of Figure 5 are the additional features, and are at predetermined (i.e., defined) locations on the array (page 4, lines 54-58). The array information features provide coded, non-biological information about the array after binding to one or more array information targets; namely, the probes forming the letters hybridize to array information targets in the form of control probes (page 5, lines 15-25). The control

probes are array information target in accordance with the embodiment described in paragraph [0072] of the specification because they bind to the complementary array information feature. The information is coded because the hybridization forms letters of the English alphabet, as described in paragraph [0078] of the instant specification.

Furthermore, Morris at paragraph [0042] teach that the nucleic acid tags "function in a manner analogous to a bar code label," wherein a bar code label provided encoded array information. For example, Morris teach at paragraphs [0045] – [0046] that the nucleic acid tags can be used to tag each of the deletion mutants, which are then tested for their response to an environmental stimulus. The cell-specific tags are then read using a probe array, wherein the cell-specific tags act as bar code labels disclosing which cell is being examined and the array acts as a bar code reader. In the instant case the nucleic acid tags provide information about specific cells being examined. Therefore, the tags used, which provide information about the specific cells being examined, reads on providing information that is particular to the array, i.e. encoded array information.

In addition, the array information features provide coded, non-biological information about the array after binding to one or more array information targets; namely, the probes show the corners of the array (page 5, lines 15-25). The corners of the array are non-biological information about the array in accordance with the embodiment described in Example 1 on pages 42-43 of the instant specification, which states that the corners of the array are an example of "non-biological information." Thus, the claim has been given the broadest reasonable interpretation consistent with

the teachings of the specification regarding "non-biological information" (*In re Hyatt*, 211 F.3d1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000) (see MPEP 2111 [R-1])). The control probes are array information target in accordance with the embodiment described in paragraph 072 of the specification because they bind to the complementary array information feature. The information is coded because the specific checkerboard pattern codes for each of the corners of the array, the three square patterns code for the top and bottom of the array, and the lines of the crosshair code for the center of the array, in accordance with the embodiment described in Example 1 on pages 42-43 of the instant specification, which states that a "graphic icon" is a symbol (i.e., code). A review of the specification yields no limiting definition of a "graphic icon;" thus, the checkerboard pattern of the corners of the array, the three square patterns, and the crosshair lines in the array of Morris are interpreted as "graphic icons" in accordance with the checkerboard patterns in the corners of Figure 5 of the instant specification, and thus is a "code" for the corner, and the claim has been given the broadest reasonable interpretation consistent with the teachings of the specification regarding a "code" and a "graphic icon." The features capable of binding an analyte are different from the array information features because the corner features of Figure 5 bind to control probes, rather than the analyte (page 4, lines 15-20).

Morris et al. do not explicitly teach instructions for decoding encoded array information wherein said instructions names an executable program for decoding array information and comprises instruction to display said information on a monitor to a user.



Brandon et al. at paragraphs [0503] - [0517] teach a processing system that operates to decode encoded information, i.e. the operating system operates to determine the serial number of the array, which is then used to access the respective array layout stored in a database, which will then be used to interpret the respective feature to which each value corresponds.

Brandon et al. does not explicitly teach wherein the instructions names an executable program for decoding array information and comprises instructions to display said information on a monitor to a user.

With regards to instructions that name an executable program, it is being interpreted as the instructions execute a program for decoding array information. In the instant case, it is inherent that the invention taught by Brandon et al. comprises instructions for executing a program in the processing system, which operates to decode encoded information.

It would have been obvious to one of ordinary skill in the art at the time of the instant invention to have used an operating system with instructions to decode encoded array information as taught by Brandon et al. for use in decoding the encoded array information taught by Morris et al. This is because a computer readable medium comprising instructions for decoding encoded array information is a form of automation, wherein automating a process such as the one taught by Morris et al., i.e. instructions for executing a program for decoding encoded array information is an obvious improvement that could have been applied to a known method and the results would have been predictable to one of ordinary skill in the art. Furthermore, one of ordinary

skill in the art would find that the differences between the claimed invention and the prior art were encompassed in known variations or in a principal known in the prior art.

Morris et al. teach claims 26-27 at page 5, lines 8-9.

Claims 3-5, 7 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morris et al. (EP O 799897 A1) in view of Brandon et al. (US A/N 20040143403) as applied to claim 1 above, and further in view of Balaban et al. (US P/N 6,229,911).

Brandon et al. suggests, but do not and Morris et al. do not explicitly teach wherein said information for decoding encoded array information comprises a table that contains a list of feature identifiers and a list of probe identifiers corresponding information.

Brandon et al. suggests this because they teach at paragraph [0194] having an identifier for each feature and at paragraphs [0774] – [0784] keeping a file of each probe used.

Balaban teaches at Col. 4, lines 4-55 teaches organizing and storing array information, such as features and information for analyzing the array in tables in databases wherein the table indicate that certain features of said array are array information features and that features correspond to particular bit of a code as in claims 3-5.

It would have been obvious to one of ordinary skill in the art at the time of the instant invention to use tables comprising a list of features and identifiers corresponding to said features as taught by Balaban for organizing said array information as taught by

the combination of Brandon et al. and Morris et al. This is because it is a common method step for the researcher to organize information, such as array information, in easy to manage, identify and accessible ways such as through the use of tables with a reasonable expectation of success. Furthermore, one of ordinary skill in the art would immediately recognize that organizing the data for an array through the use of tables would be a routine skill in the art, which would be performed with a reasonable expectation of success.

Morris et al. and Brandon et al. suggest, but do not explicitly teach wherein said information for decoding encoded array information is a file that has a unique identifier that corresponds to a unique identifier of an array as in claim 7 and 29.

Morris et al suggest this because they teach an array wherein said information about the array is unique; namely, the corner patterns, three square patterns, and crosshair patterns are unique to a specific array because in Figure 5, the corner patterns are a 3-2-3 pattern, the three-square patterns are only on the top and bottom of the array, the vertical line of the crosshair at the top of the array has 18 spots, and the vertical line of the crosshair at the bottom of the array only has 15 spots (Figure 5). In contrast, the array of Figure 1 has an offset "2-2-2-2" checkerboard pattern, and three-square patterns on the top and sides of the array, and has 20 spots in each of the vertical lines of the crosshair at the top and bottom of the array. Thus, each of the two arrays is uniquely marked. Furthermore, Morris et al. do teach a computer program for performing the method steps of the invention, which implies that a computer program is

a file with a unique identifier as it is necessary for location and access purposes for processing instructions.

Brandon et al. suggests this because at paragraph [0602] they teach using unique identifiers for clinical conditions using numbers.

Balaban et al. teaches at Col. 2, lines 41-65, Col. 4, lines 4-55, Col. 5, lines 3-65, Col. 9, lines 55-67, and col. 10 using identifiers for array chips and layout information, which are electronically stored in chip tables and unique identifiers are used for said array layout information, wherein the information is retrieved for experiments.

It would have been obvious to one of ordinary skill in the art at the time of the instant invention to correlate the unique identifiers taught by Balaban et al. used for a file for storing information for decoding encoded particular array information as used for identifying the array for which the information was obtained as taught by Brandon et al. and Morris et al. This is because it is common in the art to use unique identifiers and correlate unique identifiers with their associated information such as array layout or file for storing information for analyzing the array information and corresponding the unique identifiers would enhance the data management aspect of an array experiment and better ensure the proper analysis was made on the proper array.

Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morris et al (EP 0 799 897 A1) in view of Brandon et al. (US A/N 20040143403) and in further view of Balaban et al. (US P/N 6,229,911) as applied to claims 1 and 7 above and further in view of Spaulding et al (U.S. Patent No. 2,886,241, issued 12 May 1959)

and further in view of Cowlshaw (IEEE Proc. Comput. Digit. Tech., vol. 49, pp. 1-2-104 (2002)).

Morris et al, Brandon et al., and Balaban et al. do not explicitly teach the coded information is binary coded information as in claims 8-9.

Spaulding et al teach the use of binary coded decimal code (column 1, line 18) with the added benefit of being enabling the use of a simpler apparatus (column 1, line 43).

Further, Cowlshaw teaches the use of binary coded decimal code as a widely used encoding (page 102, column 1, paragraph 1 lines 1-2) with the added benefit of simplified decimal arithmetic, simplified shifting, and trivial conversions to or from characters (page 102, column 1, paragraph 1 lines 1-2). Thus, Spaulding et al and Cowlshaw et al each teach the known technique of using of binary coded decimal code.

It would therefore have been obvious to a person of ordinary skill in the art at the time the claimed invention was made to have modified the coded array of Morris et al., Brandon et al., and Balaban with the binary coded decimal code as taught by Spaulding et al or Cowlshaw with a reasonable expectation of success. The ordinary artisan would have been motivated to make such a modification because said modification would have resulted in an addressable array having the added advantage of being a simplified apparatus as explicitly taught by Spaulding et al (column 1, line 43) or said modification would have resulted in an addressable array having the added advantage of using simplified arithmetic and shifting and to make conversions to or from characters easier as explicitly taught by Cowlshaw (page 102, column 1, paragraph 1 lines 1-2). In

addition, it would have been obvious to the ordinary artisan that the known technique of using the binary codes of Spaulding et al or Cowlshaw et al could have been applied to the coded array of Morris et al with predictable results because the binary codes of Spaulding et al or Cowlshaw et al predictably result in codes useful for displaying information.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Morris et al. (EP 0 799 897 A1) in view of Brandon et al. (US A/N 20040143403) as applied to claim 1 above, and further in view of Hu et al (US PGPUB # 2004/0248287 with an effective filing date of March 28<sup>th</sup>, 2003).

The claim is drawn to a computer-readable medium of claim 1 with the use of multi-arrays.

Morris et al. and Brandon et al. disclose the computer-readable medium of claim 1, but do not disclose the use of multi-arrays.

Hu et al. disclose multi-arrays and their use (abstract).

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the computer-readable medium of Morris et al. and Brandon et al. to use multi-arrays. One of ordinary skill in the art would have been motivated to do this because, as suggested by Hu et al., multi-arrays require less sample than traditional arrays (paragraph 10, lines 1-4). Hence, by using a multi-array, one could carry out the same assays without having to extract as much sample or carry out more assays for a given sample amount.

***Conclusion***

No claim is allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Sims, whose telephone number is (571)-272-7540.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Marjorie Moran can be reached via telephone (571)-272-0720.

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the Central PTO Fax Center. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993) (See 37 CFR § 1.6(d)). The Central PTO Fax Center number is (571)-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

// Jason Sims //

/Michael Borin/

Primary Examiner, Art Unit 1631